K A N S A S

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Pandemic Influenza Personal Protective Equipment
Recommendations for Kansas Law Enforcement Personnel

October 19, 2006

Human influenza virus is transmitted from person to person primarily via virus-laden droplets generated when a person coughs or sneezes. According to the Institute of Medicine (IOM), flu viruses may "disperse as aerosolized particles released in the breath of infected people, spread on larger droplets projected through coughing and sneezing, or [be] contracted through physical contact with contaminated people and surfaces." The US Centers for Disease Control and Prevention (CDC) notes that a person may be exposed to droplets still in the air by directly breathing the sneeze, or by touching something the sick individual sneezed on (a "fomite") and then touching their mouth, nose, or eyes. Limiting exposure to sick people, staying more than three feet away from sneezing individuals, good hand washing, and covering the face when sneezing provide an adequate level of basic protection from the spread of disease. However, these "social distancing" efforts are often impossible in the law enforcement setting. This is especially true given that the infectious nature of an individual cannot be detected solely by observation. A person infected with the influenza virus can be contagious up to two days before they show signs of being ill and for several days after they are sick.

A common concern of law enforcement agency (LEA) personnel is remaining healthy and able to perform their duties in the event of a pandemic. Personal Protective Devices (PPD) are often thought of as a primary route of prevention. This brief will discuss the current Kansas Department of Health and Environment (KDHE) recommendations for the role of PPD in preventing pandemic spread in the LEA setting

Face Masks

Law enforcement personnel often wear disposable surgical masks during routine operations with suspects considered high-risk sources of blood, sputum, or body fluid contact. Persons under LEA supervision may also be outfitted with masks to prevent officer exposures. Concerns have been raised about the adequacy of these masks in preventing transmission of pandemic influenza.

Two types of masks are prominent in this discussion. One is a common surgical mask. In the health care setting, the surgical mask is normally used by patients ill with flu. Surgical masks are primarily designed to keep viruses from getting out of the mask. The second mask type,

known as an N95 respirator, is used to keep airborne particles, including viruses, from getting into the mask.

The key difference between the two types of masks is in the seal that is formed around the face of the wearer. When worn correctly, the N95 forms a complete seal on the face whereas the surgical mask does not. However, if the N95 is not worn correctly it will not provide optimal protection. Even with a correct fit, the National Institute for Occupational Safety and Health (NIOSH) allows for a 10% break in the seal of the mask, possibly limiting the effectiveness of an N95 respirator to 85%. The use of respirators by employees is subject to *OSHA 29 CFR 1910.134*, which mandates that agencies have a written respiratory protection program, including medical monitoring, regular training, and fit testing for individuals provided with respirators. In April 2006, the IOM said that, as it relates to flu, "little is known about the effectiveness of masks and respirators…" However, some predictive statements may be made. While the influenza virus itself has a mean size of 0.1 microns, they are usually transmitted in droplets of 5 microns or greater in size. A sampling of commonly available surgical masks filters particles down to 0.1 microns, while an N95 respirator filters down to 0.03 microns. It seems reasonable to consider that either mask has an equal filtering capacity in reference to the mode of transmission of the influenza virus.

At this time, KDHE does not recommend the routine use of face masks for preventing pandemic flu in the community setting. As previously noted, a person may be contagious with flu up to two day before showing symptoms. Officers would literally have to wear masks continually because they would never know if they were near someone with flu. As noted, the seal provided by a surgical mask is not complete, and their use may provide the wearer with a false sense of security against pandemic influenza. N95 respirators require special training to be worn correctly and require a substantial financial and administrative investment. Considering that the effectiveness of these respirators in preventing influenza is unproven, they may represent an ineffective use of already limited funds. Both types of masks also need to be changed on a regular basis, and are a single use item (each mask can only be worn once). Regular mask replacement would become very expensive, especially with the N95 device. *However, mask use may be strongly considered when dealing with an individual previously known or suspected of having influenza.*

Gloves

LEA staff may also encounter influenza virus through touch. This occurs as a result of contact with a person's secretions or from touching a fomite. Latex or Nitrile gloves may also be worn to limit exposure. Surgical gloves have specifications that must be met and are effective in the prevention of influenza transmission. Gloves do need to be changed after each contact with a different person, but are relatively inexpensive. Gloves should not be washed or disinfected for reuse. Many LEA organizations now advise the routine use of gloves in operations in order to prevent blood and body fluid exposures to officers. Pandemic influenza should not change this current practice, and the prospect of glove use in preventing pandemic transmission simply reinforces current practice.

Other Preventive Measures

Preventive measures are the cornerstones of good health in all circumstances. Specific practices shown to insure good health at all times are especially relevant during an influenza pandemic. These practices include:

- **Use good hygiene.** Wash hands regularly and thoroughly, especially before eating. Regularly wipe off surfaces (tables, door handles, keyboards, etc.) with a disinfectant to minimize viruses.
- **Allow people their personal space.** Maintain an approximate three-foot space between persons (an arm's length) as practical. The distance helps limit exposure if they do happen to sneeze, as the larger particles will fall below the level of the head before reaching the other person.
- **Cover the mouth and nose when sneezing and coughing.** Use the inside of the elbow rather than your hands to cover your sneeze to help eliminate virus spread if a tissue is not available. Washing hands further reduces transmission.
- **Try to maintain a healthy diet following the food pyramid.** While this strategy may not completely keep you from getting sick, a healthy body will fight the flu better and faster than an unhealthy body.

In summary, KDHE does advise law enforcement personnel to continue to use masks, gloves, and other PPD as per their current protocols. No specific changes in these protocols are required to prevent transmission of pandemic influenza. LEA leaders should remain alert to possible changes in this advice, as health agencies learn more about potential pandemic agents.